



Reserve Margin Update

House Committee on Regulated Industries
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Reserve Margin

- SIMPLE DEFINITION: Percentage by which **available capacity** is expected to exceed forecasted **peak demand** across the region
- Reserves must be available in case...
 - Resources are unexpectedly unavailable at the time of peak demand
 - Demand exceeds forecast



Reserve Margin Target

- Reserve margin targets are established by regions and vary depending on types of resources available
- In 2002, the ERCOT Board approved a minimum reserve margin target of 12.5% for the ERCOT region
 - With 60,000 MW of projected peak demand, ERCOT would need at least 67,500 MW of available capacity



Reserve Margin Factors

Types of resources counted toward the margin:

- Installed operational units
 - For reserve margin purposes, wind generation is calculated differently than dispatchable resources
 - ERCOT currently counts 10% of wind farms' capacity toward reserve margin
 - Current studies indicate this may be too high
- Reliability Must Run (RMR) units
 - Units under contract with ERCOT -- determined necessary for reliability
 - Without contract, would be mothballed or retired
 - Located in areas where required for transmission support (i.e., voltage adequacy and congestion)



Reserve Margin Factors (cont.)

Also counted toward the margin:

- Private Network Resources
 - Excess capacity from resources that run at privately-owned and operated industrial facilities, and are registered in the ERCOT market
- DC Ties
 - Capacity that can be imported through links to neighboring grids
- Switchable Generation
 - Units that can be switched to produce power for either ERCOT or an adjacent grid



Reserve Margin Factors (cont.)

Also factored in:

- Planned units
 - Signed interconnection agreements only
 - Counted based on projected date in service
- Retiring units
 - Removed from list based on declared closure date
- Loads Acting as a Resource
 - Large customers registered and providing capacity services in market-based load participation program



Reserve Margin Factors (cont.)

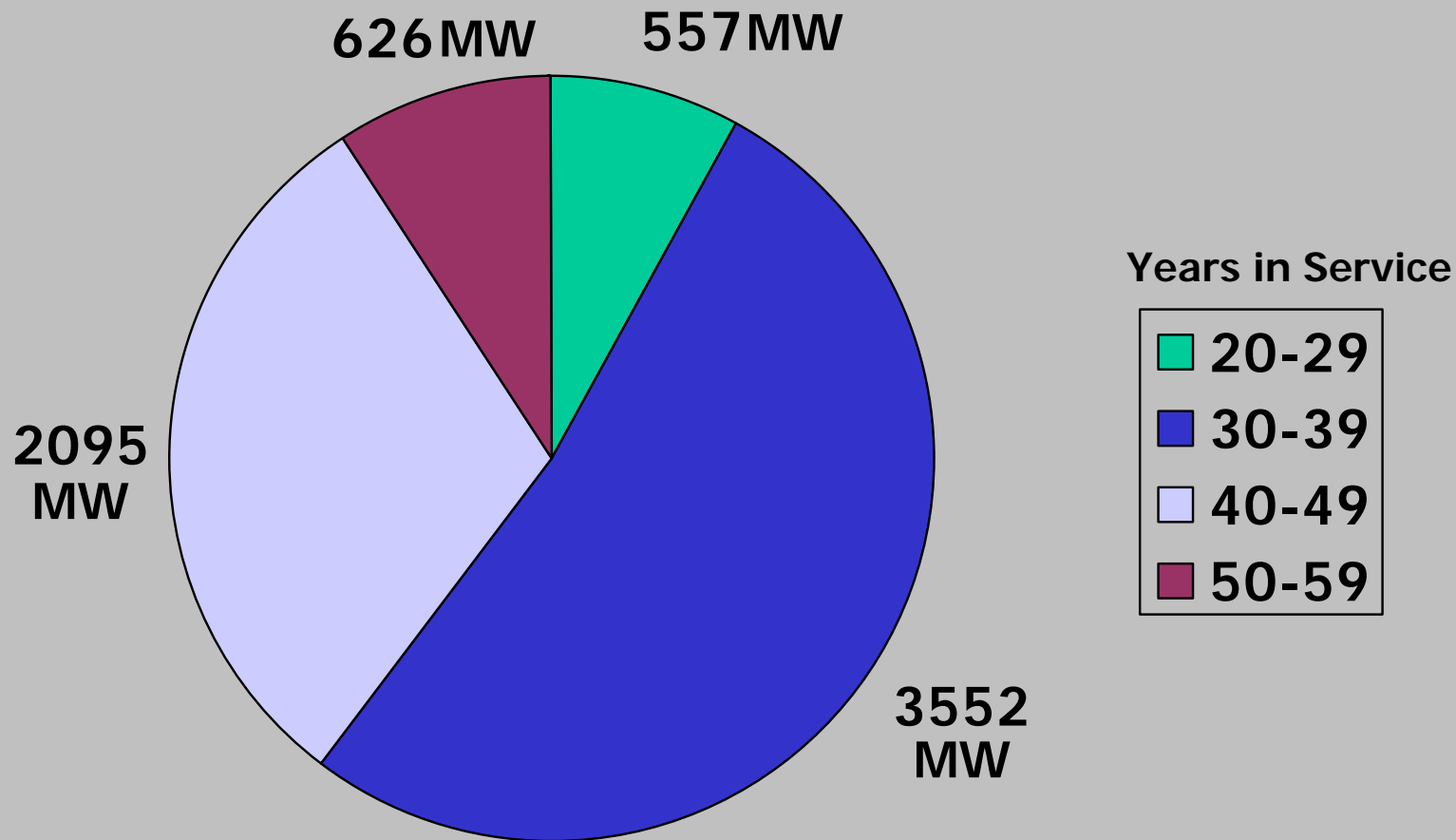
And finally...

- Mothballed units
 - Units with suspended operations
 - 6,830 MW of capacity is currently mothballed in the ERCOT region
 - For current reserve margin calculations, ERCOT assumes a mothballed unit could return after one year
 - Actual probability of return depends on:
 - Efficiency/technology
 - Length of time mothballed
 - Location (non-attainment)



Mothballed Units By Age

(Summer 2005)





Demand Projections

- Changes in peak demand projections impact reserve margin calculations similar to changes in generation capacity
 - EXTREMELY weather-sensitive
- ERCOT's projections for 2005 summer peak demand:
 - 62,906 MW (developed May 2004, basis for Generation Adequacy Task Group evaluations)
 - 59,701 MW (based on recent historical trends, numbers updated monthly per Protocols)



Where We Are Today

	CDR	LTDF
Resources:		
Installed Operational Units	62729	62729
Registered Capacity from Private Networks	2881	2881
Operational Wind Generation (at 10%)	142	142
RMR Units under Contract	609	609
DC Ties	856	856
Switchable Operational Units	2988	2988
Mothballed Units	0	0
Planned Units with Signed Interconnects	40	40
Total Resources	<u>70245</u>	<u>70245</u>
Load Forecast:		
Total Summer Peak Demand Forecast	62906	59701
less Load Acting as Resources	-1150	-1150
Firm Load Forecast	<u>61756</u>	<u>58551</u>
Reserve Margin	13.7%	20.00%



Current Reserve Margin Projections

Year	2005	2006	2007	2008	2009	2010
CDR	13.7%	22.8%	19.9%	17.0%	14.1%	10.8%
LTDF	20.0%	30.0%	27.4%	24.9%	22.3%	19.2%

- Assumes mothballed units return after 1 year.
- Current ERCOT minimum reserve requirement is 12.5%.



Do We Have a Problem?

- NO IMMEDIATE CRISIS: Adequate short-term reserve capacity exists
- Reserve margin communication is prompting reconsideration of mothballs and renewed interest by investors
 - Example: Mothballed ANP Hays County facility (900 MW) recently announced it is returning to service
- ERCOT task group is re-evaluating reserve margin calculations & refining methodology
- PUC Docket intended to address long-term reserve margin concerns



The Wind Factor

- Wind will be an important part of the state's future overall energy mix
- However, wind is intermittent and not dispatchable
- Maximum wind output from West Texas does not correspond to peak demand (4-6 p.m. in July & August)
 - Even though average output is 16.8% of capacity during peak hours, hourly range is 0% to 49% of capacity
- This is why only a small percentage of wind capacity (currently 10%) counts toward reserve margin
- Studies indicate other regions, especially Gulf Coast, may have better wind conditions at peak periods
- Diversity of location for wind farms will be an asset



Questions?